

**Testimony of Robert M. Tobias,
Panel Member for the National Academy of Public Administration's
Study for the Federal Aviation Administration:**

**“Identifying the Workforce to Respond to a National Imperative...The Next Generation
Air Transportation System (NextGen)”**

**Before the Subcommittee on Aviation,
Committee on Transportation and Infrastructure,
House of Representatives**

March 18, 2009

Mr. Chairman and Members of the Subcommittee, thank you for inviting the National Academy of Public Administration to testify at this hearing on Air Traffic Modernization and the Next Generation Air Transportation System (NextGen). I served as a member of the National Academy Panel that issued the September 2008 report entitled: “Identifying the Workforce to Respond to a National Imperative....the Next Generation Air Transportation System (NextGen).”

In response to ongoing concerns raised by the Government Accountability Office (GAO), the Air Traffic Organization (ATO) of the Federal Aviation Administration (FAA) engaged the National Academy in June 2007 to perform two tasks: (1) identify the mix of skills needed by the non-operational workforce to design, develop, test, evaluate, integrate, and implement NextGen and (2) identify strategies to acquire those skills.

As you know, NextGen envisions a major redesign of the air transportation system that will take the nation into a new paradigm of aviation by replacing ground-based radar technology with satellite-based navigation and surveillance; digital networked communications; and an integrated weather system that uses a single, authoritative source. These changes will result in major

operational improvements and advances in technology that will reduce the environmental impact of aviation as the transportation system grows, while maintaining high safety standards and improving security.

Achieving NextGen goals will demand the highest level of organizational excellence, and ATO will need to ensure that it has employees with the right mix of skills to make NextGen a reality by the year 2025. That is why ATO sought the assistance of the National Academy to help it identify the skills needed by its non-operational (acquisition) workforce and strategies to acquire those skills.

In order to gather a full understanding of NextGen and respond to our tasks, the Panel conducted extensive research including: (1) a literature review to identify the elements of success and validate competencies, (2) benchmarking against other organizations, (3) interviews with FAA officials and stakeholders, (4) colloquia with subject-matter experts, (5) a roundtable discussion with ATO's Vice Presidents, and (6) focus groups with employees.

The Panel learned early in its research that ATO will rely primarily on its acquisition workforce (which is the largest group of the non-operational workforce) to design, develop, test, evaluate, integrate, and implement the numerous systems and procedures that comprise NextGen. ATO defines its acquisition workforce broadly in accordance with a policy letter issued by the Office of Management and Budget (OMB) in April 2005, "Developing and Managing the Acquisition Workforce." In this policy, OMB established a governmentwide framework for creating and developing a federal acquisition workforce with skills needed to support agency missions.

OMB's policy guidance permits agencies to include in the acquisition workforce employees who perform not only traditional contracting functions, but also, requirements definition, measurement of contractor performance, and technical and management direction.

When the National Academy started its study, ATO had already accomplished a significant amount of work to implement the provisions of the OMB policy, including identifying skills required by this workforce. However, the work that ATO had done was not specifically focused on NextGen. The Panel learned that ATO's acquisition workforce was grouped into five broad occupational families which embraced the full scope of the acquisition workforce as defined by OMB. These are:

- Program/Project Management
- Systems Engineering
- Research
- Business/Financial Management
- Contracting

In designing the study approach, the Panel considered whether it could successfully identify the full scope of skills needed for the NextGen transition, since NextGen is envisioned as a long-term transformation, and many of the systems and procedures that will comprise NextGen are yet to be defined. In light of this fact, the Panel concluded that it would not be possible to define skills needed to implement all NextGen systems and procedures, and decided to focus on identifying competencies for the five occupational groups, with the underlying premise being that the same competencies would be needed within each occupational family, regardless of the

NextGen system involved. After confirming that ATO intended to retain the five occupational families for workforce planning purposes, the National Academy Panel conducted research to identify the skills needed by these five groups.

The Panel found that ATO had identified and documented many of the critical competencies needed by its acquisition workforce, but that some competencies were either missing from ATO's documents or require more emphasis for NextGen. For example, the Panel determined that ATO will need to develop stronger competencies in-house to support two key functions: (1) research and development (R&D) and (2) software engineering/development. The Panel learned that ATO relies heavily on contractors and other external entities for this work, which may not serve the organization well in the future. Additionally, the Panel found that the following acquisition workforce competencies, among others, will be critical as NextGen unfolds:

- Requirements Analysis,
- Risk Management,
- Systems Thinking and Integration,
- Human Factors Engineering,
- System Safety,
- Business Case Development,
- Financial Budget and Data Analysis,
- Benefit-Cost Analysis,
- Contractor Performance Management, and
- Contract Administration.

To acquire the necessary competencies needed by the acquisition workforce, the Panel recommended a comprehensive approach that includes: (1) reviewing existing human resource flexibilities made possible under FAA's 1996 Human Resources Reform legislation, (2) reviewing all of the Governmentwide flexibilities available, and (3) creating new flexibilities to address ATO's unique needs. Within this framework, the Panel recommended several key strategies, targeted to the career stage, to acquire the skills needed by the ATO acquisition workforce. Two specific strategies included in our report were:

- **Aggressively marketing the NextGen vision and mission.** The Panel found that FAA's efforts to market and communicate the NextGen vision may not be adequate and concluded that ATO could do more to generate excitement and interest around the NextGen vision to make the work more attractive to prospective candidates.
- **Developing a more strategic approach to recruitment pipeline issues.** Entry-level employees are the fundamental source for building a pipeline, and the ability to hire entry-level employees in Science, Technology, Engineering, and Mathematics (STEM) occupations will be critical to NextGen's success. ATO needs to take a more strategic approach to creating a pipeline of talent to meet its future NextGen workforce needs. ATO could look to NASA for best practices in this area.

Mr. Chairman, now I would like to move to a discussion what the Panel believes is the most important and impactful area of our report. While the Panel provided a comprehensive response on the acquisition workforce competencies, our research revealed that **leadership** is the single

most important element of success for large-scale systems integration efforts like NextGen. Our research highlighted leadership as a NextGen implementation challenge, which led the Panel to examine in detail the FAA Leadership Program along with several current perspectives on leadership to identify specific leadership competencies critical to NextGen. In addition to reviewing the FAA Leadership Program, the Panel conducted two colloquia with senior experts to obtain their insights on leadership competencies needed for NextGen, reviewed General Electric's Leadership Model, examined the new Complex Project Management Competency Standard, and conducted research on Collaborative Public Management.

The Panel found the FAA program to be very comprehensive in its approach. It considers all employees of the agency—from entry-level staff through executives. It also provides ample means for any employee to access the support needed to improve leadership competencies. So, the Panel concluded that the *platform* exists within this program to provide the appropriate training and professional experience needed by NextGen leaders. However, to be successful, the Panel concluded that the program needs to be tailored to focus on some key competencies already included in the program as well as some aspects of leadership development included in other programs.

Based on its research, and building on the FAA leadership competencies, the Panel identified the leadership competencies critical to NextGen and developed a Leadership Competency Model. These critical leadership competencies include:

- Accountability and Measurement
- Problem Solving

- Business Acumen
- Customer Focus
- Building Teamwork and Cooperation
- Communication
- Building Alliances
- Interpersonal Relations and Influence
- Integrity and Honesty
- Vision
- Strategy Formulation
- Agility
- Public Sector Savvy
- Complex Project Management

Because of the importance of leadership to NextGen success, the Panel recommended that leadership development be given top priority.

In addition to *leadership*, the Panel identified several other implementation challenges that may impede the progress of NextGen. These included:

- **NextGen Plans:** The Panel recommended that ATO complete its work to develop a detailed NextGen Implementation Plan and communicate it to the workforce, stakeholders, and Congress. We were told that this Plan would be issued in January 2009, and we commend FAA for meeting this important milestone.

- **Labor-Management Relations:** As you know, FAA’s workforce is highly unionized, and ATO’s ability to successfully transition to NextGen will require that the agency develop and implement a “break-through” strategy to successfully engage the unions that represent its employees, who are in some cases, the end users of NextGen technology. While some progress has been made over the last four years, more needs to be done to ensure that FAA’s labor-management relations do not adversely impact the NextGen transition.
- **Integration of NextGen Programs:** The Panel found that ATO service units which have a role in the NextGen transition may not have clear, straightforward business processes that support the transition. Rather, the business processes in place may be more supportive of ATO’s operational mission than its long-term NextGen vision. Therefore, the Panel recommended that ATO evaluate the business processes embedded in service unit operations to ensure that they also support the integration of NextGen programs.
- **Human Resources (HR) Operations:** The National Academy learned that human resources (HR) services for NextGen are shared between FAA’s Assistant Administrator for Human Resources and HR staff in ATO, with neither group fully understanding or embracing the roles and responsibilities of the other. Additionally, senior managers in ATO expressed concerns about the availability of adequate HR support to staff NextGen positions. Therefore, the Panel recommended that FAA and ATO evaluate the structure and content of their HR operations and services to ensure that both are optimally designed to support NextGen. We are pleased to report that FAA has already agreed to implement this recommendation.

Additionally, as our study neared completion, the Panel learned that FAA and ATO were already taking steps to address other findings and recommendations included in our draft report, and these efforts were fully acknowledged in our final report. For example, we found that FAA and ATO were:

- Working to improve communication efforts for NextGen,
- Reviewing the ATO governance structure for NextGen,
- Planning an evaluation of the ATO culture to be supported by programs to help ATO leaders understand the desired behaviors needed for success, and
- Examining the NextGen governance structure.

In conclusion, the Academy Panel is confident that FAA will take the necessary steps to meet its near-term goals with respect to the transition to NextGen. The Panel believes that its recommendations provided clear guidance on the right mix of competencies ATO needs to acquire and retain to meet the agency's NextGen goals. However, the Panel is much less optimistic that ATO has created the right organizational environment to retain those competencies. Until ATO fully addresses its implementation challenges, **especially its leadership issues**, the Panel is concerned that these issues may derail the agency's NextGen plans.

America's air transportation system is vital to the continued health of our nation's economy, and it has an important role in maintaining our global economic standing. Successful transition to

NextGen is critical and will require resources, internal leadership and unwavering commitment-- not only from FAA but also from Congress and the new Administration.

Mr. Chairman, that concludes my statement. Thank you for inviting the National Academy to testify at this hearing.

I would be happy to respond to questions.